

PRINCIPAL FACTORS FOR PUBLIC-PRIVATE
PARTNERSHIP (PPP) IMPLEMENTATION IN
VIETNAM: A MIXED METHODS STUDY

ANH TUAN LA

Supervisor panel: Assoc. Prof. Judy Johnston, Dr. Karen Wang and
Assoc. Prof. Antoine Hermens

A thesis submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy

BUSINESS SCHOOL
UNIVERSITY OF TECHNOLOGY SYDNEY



2016



ABSTRACT

Public-Private Partnerships (PPPs) involve a combination of two motivators: (1) profit for the private sector; and, (2) efficiency and savings for the public sector. This approach, which has become increasingly popular as a way of procuring and maintaining public infrastructure, is being adopted by many governments around the world. However, employing the PPP approach is not always positive and depends on each country context. This study investigates the principal factors for PPP implementation in a developing country (Vietnam). It explores their criticality using a mixed quantitative and qualitative methods sequential explanatory strategy. The study also uses a confirmatory factor analysis technique to address the potential drawbacks of the conventional mean value analysis method, and adopts a two-dimensional importance analysis approach to illustrate the co-variances among factors. The differences between North and South Vietnam, and between the public and private sectors concerning the importance of these factors, are additionally investigated in this study.

The results of this study confirm 37 from a pool of 84 factors suitable for PPP implementation in Vietnam, of which 23 important factors are identified and explained. This study also indicates four additional success factors in the context of Vietnam, including **Stable government policies**, **Support from civilians**, **Attention and care of top leaders**, and **Coordination between relevant governmental departments and Ministries**. In addition, the study's findings prove the suitability of the adoption of the PPP approach in the Vietnamese context. Although no evidence was found for the significant differences between the public and private sectors on the importance of these factors, the results indicate a significant difference regarding the importance of the success factor **Stable macro-economic condition** between North and South Vietnam. Apart from the economic aspects, other elements were found to significantly contribute to the differences of PPP implementation between the two regions. These include: political aspects; infrastructure and weather conditions; and, cultural and human matters. Considering a combination of the most critical factors for PPP implementation in Vietnam obtained from the integration of the quantitative and qualitative findings, this

study proposes an ideal model of the principal factors contributing the success of PPP implementation in Vietnam at the early stages of the PPP process. Compared with the results obtained in other countries, this study further indicates 13 important factors, irrespective of different jurisdictions. The remaining 10 factors are considered differently among the countries, depending on each country context.

The findings of this study have theoretical, methodological and practical value. The theoretical contributions include: this study provides a comprehensive review of the field and specifically of the principal factors for PPP implementation by using a three-stage method of a combined quantitative systematic and content analysis approach; it puts Vietnam on the map of PPP research in specific terms, possibly for use in future comparative, replicative research by showing dysfunctional, haphazard or incomplete models of PPPs in action in Vietnam; and, it provides a comparison for perceiving the important principal factors between countries, sectors, and the two halves of Vietnam, finally shown on an ideal model of PPPs in the country. In addition, it contributes four new success factors of PPP projects that emerged in the context of Vietnam to the existing literature on PPPs. Regarding methodological contributions, this study employs a new methodology approach to allow for a better understanding of the research problem by using a mixed methods design, and the application of techniques to address and present the co-variances between factors. This study also has implications for practice in that it constitutes a basis analysis for the government and the private sector of: how to adopt and identify PPP projects; and, how to attract private sector participation in PPP projects. It is believed that this useful information will help to minimise the current issues of PPP implementation in Vietnam.



CERTIFICATE OF ORIGINAL AUTHORSHIP

I certify that the work in this thesis has not previously been submitted for a degree, nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Date: 18/10/2016

Signature of Student:

ANH TUAN LA



ACKNOWLEDGMENTS

It is now time for me to say thanks to all of the people who have helped me during my PhD study. It has been a long and challenging journey. Thanks to companionship, I have never been alone all along during this journey to reach a fulfilling and rewarding completion.

First, I would like to express my grateful thanks to both my principal supervisor, Associate Professor Judy Johnston and my co-supervisor, Dr. Karen Wang. They guided me through each critical point of my thesis, at all times providing me with invaluable advice and comments. Their knowledge, experience, and enthusiasm encouraged me to believe in my capacity to complete the thesis. Without their kind support and warm encouragement, this thesis would not have been completed.

I also would like to thank my alternative supervisor, Associate Professor Antoine Hermens for his comments and suggestions, which improved the quality of this thesis greatly.

My special thanks go to Associate Professor Deborah Edwards for her valuable academic advice and kind support. She guided me through the process of finishing the thesis. I also owe a debt of gratitude to Emeritus Professor Jenny Edwards, who facilitated the proofreading of the thesis.

I also wish to express my gratitude to Dr. Estelle Dryland for agreeing to be the editor of the thesis and for her wonderful editing and proofreading.

I own a further debt of gratitude to the Ministry of Education and Training of Vietnam, and to the University of Technology Sydney for awarding me a joint scholarship to study a PhD course in Australia. I also acknowledge the team from the Public Procurement Agency under the Ministry of Planning and Investment of Vietnam, who helped me conduct a survey of the principal factors for Public-Private Partnership implementation in Vietnam.

Last but not least, thank you so much to my two beloved boys Phuc Minh La and Phuc Thanh La, who gave me emotional encouragement, and especially

to my wife Thao Quyen Dang for her never-ending sacrifice for me. Without their love, encouragement and support, I would not have had the strength and determination to overcome the difficulties and challenges that are a vital part of PhD achievement.

CONTENTS

List of Figures	ix
List of Tables	xii
List of Acronyms	xvi
1. Introduction	1
1.1 Research background	1
1.2 Statement of problem	4
1.3 Previous studies	7
1.4 Rationale for employing a mixed method approach	8
1.5 Purpose of the study and research questions	9
1.6 Outline of the study	10
2. General review of Public-Private Partnerships	12
2.1 Introduction	12
2.2 Research studies conducted on PPP topics	12
2.2.1 Reasons for adopting PPPs	19
2.2.2 Attractive and negative factors	21
2.2.3 Measures enhancing VFM in PPP projects	26
2.2.4 Success factors for PPP projects	27
2.2.5 Attractions for private sector involvement	31
2.3 Background of Public-Private Partnerships	31
2.3.1 Emergence of PPPs	31
2.3.2 Definitions of a PPP	35
2.3.3 Types of PPPs	37
2.3.4 A PPP and traditional procurement	41
2.3.5 Participants in a PPP project	43
2.3.6 The PPP process	44
2.4 Global practice of PPPs	46
2.5 Summary and literature gap	52
3. PPP implementation in Vietnam	56
3.1 Introduction	56
3.2 Distinctions in the context of Vietnam	57
3.2.1 Public infrastructure	58

3.2.1.1	Current status and demand	58
3.2.1.2	Investment capacity	63
3.2.2	Political climate	68
3.2.3	Differences between the North and South of Vietnam	74
3.3	PPP implementation in Vietnam	76
3.4	Summary and literature gap	84
4.	Research Methodology	88
4.1	Introduction	88
4.2	Overview of academic research design	88
4.3	Research design selection for this study	92
4.3.1	Selection of mixed methods	92
4.3.2	Selection of the sequential explanatory design	93
4.3.3	Phase 1 - Quantitative phase	96
4.3.3.1	Data collection	96
4.3.3.2	Data analysis	101
4.3.4	Phase 2 - Qualitative phase	108
4.3.4.1	Data collection	108
4.3.4.2	Data analysis	114
4.4	Research permission and ethical considerations	116
4.5	Summary	117
5.	Phase I - Quantitative Results	119
5.1	Introduction	119
5.2	Primary assessment of quantitative data	120
5.3	Exploratory factor analysis	127
5.4	Confirmatory factor analysis	136
5.5	The principal factors in the final model	143
5.5.1	Important factors for PPP implementation in Vietnam	143
5.5.1.1	Reasons leading to the adoption of PPPs	143
5.5.1.2	Attractive factors of adopting PPPs	145
5.5.1.3	Negative factors of adopting PPPs	146
5.5.1.4	The suitability of adopting PPPs	148
5.5.1.5	Factors attracting private sector involvement in PPP projects	150
5.5.1.6	VFM drivers in PPP projects	151
5.5.1.7	Success factors of PPP projects	153
5.5.2	Differences between groups of respondents	155
5.6	Summary	164
6.	Phase II - Qualitative Results	167
6.1	Introduction	167

6.2	Qualitative results	167
6.3	Summary	194
7.	Discussion	195
7.1	Introduction	195
7.2	Interpreting the quantitative and qualitative results	196
7.3	Developing an ideal PPP model for Vietnam	217
7.4	Comparison with other countries in the literature	219
7.4.1	Common factors for countries	221
7.4.2	Specific factors for countries	223
7.4.3	Specific factors for Vietnam	225
7.5	Limitations and future research	227
7.6	Summary	229
8.	Summary	230
8.1	Introduction	230
8.2	Study design and findings	230
8.3	Implications and suggestions	236
8.3.1	Theoretical contributions	236
8.3.2	Methodological contributions	239
8.3.3	Practical contributions	241
8.4	Summary	246
	Appendixes	247
	Appendix I: Research trend and interest of PPP publications	247
	Appendix I-1: Research trend of PPP publications	250
	Appendix I-2: Research interests of PPP publications	256
	Appendix II: Papers relating to the principal factors for PPPs	266
	Appendix III: Questionnaire Survey and Quantitative Results	267
	Appendix III-1: Questionnaire Survey Cover Letter	267
	Appendix III-2: Questionnaire Survey Template	268
	Appendix III-3: Email Reminder	271
	Appendix III-4: Another and Final Email Reminder	272
	Appendix III-5: Quantitative Results	273
	Appendix IV: Qualitative Interview and Analysis	278
	Appendix IV-1: Interview Invitation Letter	278
	Appendix IV-2: Information sheet for interviewees	279
	Appendix IV-3: Consent form for interview participants	280
	Appendix IV-4: Interview protocol template	281
	Appendix IV-5: Pilot Interview analysis	283
	References	286

LIST OF FIGURES

Figure 1	The relationship between theory, research, and practice (Darlington and Scott 2002).	13
Figure 2	Literature survey for PPP publications, adapted from Ke, Wang, Chan and Cheung (2009).	16
Figure 3	Principal factors for PPP implementation Li (2003).	17
Figure 4	Continuum of types of PPPs, adapted from NCPPP (2011), Kwak, Chih and Ibbs (2009) and Gil (2013).	38
Figure 5	Traditional procurement and a PPP (Davies and Eustice 2005).	42
Figure 6	PPP Market Maturity Curve (Deloitte 2013).	49
Figure 7	Theoretical framework for PPP implementation.	53
Figure 8	The map of cities and provinces in Vietnam.	57
Figure 9	Road density index of some countries in the world (km/km^2) (Warlters 2006).	61
Figure 10	The quality of road infrastructure in some countries (1 - very bad, 7 - very good) (Warlters 2006).	61
Figure 11	Funding for road transportation in Vietnam (Information about funding for road transportation in Vietnam may be obtained from the General Statistics Office at website http://www.gso.gov.vn/default.aspx?tabid=432&idmid=3 . Accessed 5/2013).	64
Figure 12	Investment commitments to infrastructure projects with private participation, calculated in US\$ billion (Sources: World Bank and Private Participations in Infrastructure Project Database PPIAF).	68
Figure 13	CPI of Vietnam (1998 to 2013).	71
Figure 14	CPIA Rating: Regulatory quality - A higher rating indicates a better regulatory environment. (Sources: the World Bank, Worldwide Governance Indicators).	78
Figure 15	Proportion of numbers of projects by investment sectors. (Source: the Economic Committee of Vietnamese Congress).	81

Figure 16	Theoretical foundation for the study.	86
Figure 17	A framework of various research designs (Creswell 2003).	89
Figure 18	The explanatory sequential mixed methods design (Creswell and Clark 2007).	94
Figure 19	Visual diagram of the sequential explanatory mixed methods design procedures for this study - Adapted from Ivankova and Stick (2007)	97
Figure 20	Two-dimensional importance analysis (Chou, Ping Tserng, Lin and Yeh 2012) derived from Importance-performance analysis (Lewis 2004).	107
Figure 21	The distribution of respondents participating in the survey.	121
Figure 22	Number of PPP projects in which the respondents had participated.	125
Figure 23	Types of projects in which respondents were involved.	126
Figure 24	Initial Measurement Model containing the 84 factor indicators (Source: Thesis author).	136
Figure 25	The Revised Measurement Model using the EFA results (Source: Thesis author).	138
Figure 26	The Final Measurement Model (Source: Thesis author).	139
Figure 27	Importance analysis diagram of the reasons leading to the adoption of PPPs in Vietnam.	144
Figure 28	Importance analysis diagram of the attractive factors for adopting PPPs in Vietnam.	145
Figure 29	Importance analysis diagram of the negative factors for adopting PPPs in Vietnam.	147
Figure 30	Importance analysis diagram of the attractive and negative factors for adopting PPPs in Vietnam.	149
Figure 31	Importance analysis diagram of the attractions for private sector involvement in PPP projects in Vietnam.	151
Figure 32	Importance analysis diagram of VFM drivers in PPP projects in Vietnam.	151
Figure 33	Importance analysis diagram of the success factors of PPP projects in Vietnam.	154
Figure 34	Importance analysis diagram of the differences between the two respondent groups from North Vietnam and South Vietnam.	159
Figure 35	Importance analysis diagram of the differences between the two respondent groups from the public and private sectors in Vietnam.	162

Figure 36	A summary of the quantitative and qualitative results (Reasons for; Attractive and Negative factors of adopting PPPs).	201
Figure 37	A summary of the quantitative and qualitative results (VFM drivers; Attractions for private sector involvement; CSFs of PPP projects).	202
Figure 38	Model of principal factors for PPP implementation in Vietnam (Source: Thesis author).	218
Figure 39	Topics of PPP publications between 1998 and 2013.	259
Figure 40	The CFA's results for the Original Measurement Model	273
Figure 41	The CFA's results for the Revised Measurement Model	274
Figure 42	The CFA's results for the Final Measurement Model	275

LIST OF TABLES

Table 1	Driving forces for adopting PPPs from published literature.	20
Table 2	Attractive factors of adopting PPPs from published literature.	24
Table 3	Negative factors of adopting PPP arrangements from published literature.	25
Table 4	Measures enhancing VFM in PPP projects from published literature.	26
Table 5	Factors contributing to the success of PPP projects from published literature.	29
Table 6	Privileges or attractions for private sector involvement in PPP projects from published literature.	31
Table 7	Definitions of a PPP provided by some governments and organisations.	37
Table 8	Descriptions of some of the most common PPPs for existing projects (Deloitte 2013).	38
Table 9	Descriptions of some of the most common PPPs for new projects (Deloitte 2013), (Kwak et al. 2009), and (Gil 2013).	40
Table 10	Infrastructure projects and investment in different regions in the world by primary sector (World Bank 2013).	47
Table 11	Government budget deficit during the period 2005 to 2013.	63
Table 12	ICOR comparison between Vietnam and other countries in the region during the same period of development, calculated from the World Development Indicators of the World Bank.	66
Table 13	Estimated demand of government bonds of some Ministries in Vietnam in 2011 (Source: Budget and Finance Committee).	67
Table 14	List of legislation documents required for PPP implementation in Vietnam.	77

Table 15	Proportion of the total number of projects and total capital value of projects, calculated in VND\$ billion, by types of investment (Source: the Economic Committee of Vietnamese Congress).	80
Table 16	Numbers and capital values of BOT and BT projects implemented by the northern and southern regions of Vietnam (capital values were calculated in VND\$ billion). . . .	81
Table 17	Advantages and challenges of the sequential explanatory mixed methods design (Creswell and Plano 2011).	96
Table 18	Measure of statistical significance (Stevens 2012)	107
Table 19	Means and standard error of the means of the four groups of participants.	109
Table 20	Typical respondent for each of the four groups.	110
Table 21	Individuals selected for case study analysis.	110
Table 22	Data collection matrix of information sources by cases selected for the qualitative case study analysis.	113
Table 23	Multiple case study qualitative data analysis.	115
Table 24	Reliability of the questionnaire data.	120
Table 25	The respondents' roles in PPP projects.	122
Table 26	The respondents' age levels in years according to region and sector.	123
Table 27	The respondents' PPP experience in years according to region and sector.	123
Table 28	The respondents' education levels according to region and sector.	124
Table 29	The respondents' positions within their organisations according to region and sector.	125
Table 30	A summary and details of the factors.	127
Table 31	The selected criteria in dialogue boxes in factor analysis for EFA.	130
Table 32	Pattern Matrix for Exploratory Factor Analysis.	130
Table 33	KMO and Bartlett's Test.	132
Table 34	Cronbach's Alpha for the extracted factor indicators of the six constructs.	133
Table 35	Component Correlation Matrix.	134
Table 36	Total variance explained.	135
Table 37	Validation assessment of the Initial, Revised, and Final Measurement Models.	137
Table 38	Validity and Reliability of the Revised Measurement Model.	140

Table 39	Validity and Reliability of the Final Model.	141
Table 40	Cronbach's Alpha Reliability of the Revised (Final) Model.	142
Table 41	Total Variance Explained for the Harman's Single Factor Test.	142
Table 42	Mean scores and loading coefficients of the reasons leading to the adoption of PPPs in Vietnam.	144
Table 43	Mean scores and loading coefficients of the attractive factors for adopting PPPs in Vietnam.	146
Table 44	Mean scores and loading coefficients of the negative factors for adopting PPPs in Vietnam.	147
Table 45	Differences in averaged mean scores and averaged loading coefficients between the attractive and negative factors.	148
Table 46	Mean scores and loading coefficients of the attractions for private sector involvement in PPP projects in Vietnam.	150
Table 47	Mean scores and loading coefficients of the VFM drivers in PPP projects in Vietnam.	152
Table 48	Mean scores and loading coefficients of the success factors of PPP projects in Vietnam.	153
Table 49	Results of Kendall's concordance analysis between two groups; i.e., the northern and southern respondents, of the principal factors for PPP implementation in Vietnam.	155
Table 50	Results of Spearman rank correlation test between the respondents from North Vietnam and South Vietnam for the principal factors for PPP implementation in Vietnam, calculated from the mean scores and rankings of the principal factors rated by those from North Vietnam and South Vietnam (see Appendix 8.4, Table 65).	156
Table 51	Summary of the independent two-sample t-test results of the principal factors for PPP implementation, identified by the two northern and southern region respondents in Vietnam.	157
Table 52	Group differences that emerged during the CFA between respondents from North and South Vietnam concerning the importance of the principal factors for PPP implementation.	157
Table 53	Results of Kendall's concordance analysis between the two groups, i.e., the public and private sector respondents for the principal factors for PPP implementation in Vietnam.	160

Table 54	Results of Spearman rank correlation test. Respondents from the public and private sectors ranking of the principal factors for PPP implementation in Vietnam, calculated from the mean scores and rankings of the principal factors rated by the respondents from the public and private sectors (see Appendix 8.4, Table 66).	161
Table 55	Summary of the independent two-sample t-test results for the principal factors for PPP implementation as identified by the two respondent groups from the public and private sectors in Vietnam.	161
Table 56	Group differences revealed by CFA between the respondents from the public and private sectors concerning the importance of the principal factors for PPP implementation in Vietnam.	163
Table 57	Comparison of the principal factors for PPP implementation among countries.	220
Table 58	Score distribution of authors' contributions to multi-authored papers.	249
Table 59	PPP-related papers published between 1998 and 2013 (year inclusive).	251
Table 60	Countries of origin of PPP-related publications.	252
Table 61	Active authors involved in at least four publications.	254
Table 62	Research centres claiming at least four publications.	255
Table 63	PPP papers identified in the selected ten journals between 1998 and 2014.	260
Table 64	Papers relating to the principal factors for PPP implementation published between 1998 and 2014.	266
Table 65	Mean scores and rankings of the principal factors for PPP implementation rated by respondents from North and South Vietnam.	276
Table 66	Mean scores and rankings of the principal factors for PPP implementation rated by respondents from the public and private sectors.	277



LIST OF ACRONYMS

BLT	Build-Lease-Transfer
BTL	Build-Transfer-Lease
BOO	Build-Own-Operate
BOOT	Build-Own-Operate-Transfer
BOT	Build-Operate-Transfer
BT	Build-Transfer
BTO	Build-Transfer-Operate
BVCF	Best Value Contributing Factor
CFA	Confirmatory Factor Analysis
CPI	Corruption Perceptions Index
CPIA	Country Policy and Institutional Assessment
CPV	Communist Party of Vietnam
CSF	Critical Success Factor
DB	Design-Build
DBFO	Design-Build-Finance-Operate
DBFOM	Design-Build-Finance-Operate-Maintain
DBM	Design-Build-Maintain
DBO	Design-Build-Operate
DBOM	Design-Build-Operate-Maintain
EFA	Exploratory Factor Analysis
GDP	Gross Domestic Product

ICOR	Incremental Capital and Output Rate
MVA	Mean Value Analysis
ODA	Official Development Assistance
OM	Operate-Maintain
P3	Public-Private Partnership
PFI	Private Finance Initiative
PFP	Privately Financed Projects
PMU	Project Management Unit
PPI	Private Participations in Infrastructure
PPP	Public-Private Partnership
PSC	Public Sector Comparator
PSP	Private-Sector Participation
PSPP	Public Socialisation Private Partnership
SME	Small and Medium-sized Enterprise
SOE	State-Owned Enterprise
SPV	Special Purpose Vehicle
VFM	Value for Money
VND	Vietnam Dong